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ASSIGNMENT A1

Title: Study Assignment

Problem Statement: Study of Raspberry PI, Arduino and Beagle Bone

Objectives:
- To understand and get acquainted with above microcontrollers
- To analyze the difference b/w them

Outcomes:
- To get basic knowledge about IOT and various microcontrollers to make it work
- To understand history of various microcontrollers

S/W & H/W Requirements:
- Fedora OS 20
- Raspberry PI
- Beagle Bone
- Arduino

Theory

Raspberry PI

- It is a series of small single-board computers developed in the UK by Raspberry Pi Foundation to promote teaching basic comp sci in schools.
- It is widely used in research projects like weather monitoring because of its low cost and portability.
- It does not include peripherals (keyboards and mice) or cases.

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Beagle Bone

- It is a low cost, open-source development platform for ARM Cortex A8 processor developers.

- It ships w/ Debian GNU/Linux in onboard FLASH, w/ a 10 second BOOT time. Ubuntu, Fedora and Android also supported.

- Plug in boards / capes can be plugged into two 46-pin dual-row expansion headers for VGA, LCD, motor control, etc.

Arduino

- An open-source platform w/ a micro controller and IDE to upload code to the circuit board.

Name	Arduino Uno R3	Raspberry Pi B	RevA5 BeagleBone
Processor	ATMega 328	ARM 11	ARM Cortex A8
Clock speed	16 MHz	700 MHz	700 MHz
RAM	2 KB	256 MB	256 MB
Flash	32 KB	SD card	4 GB μSD
Vin	7-12V	5v	5V
Pmin	42 mA	700 mA	700 mA
GPIO digital	14	8	65
Analog i/p	6 @ 10-bit	—	7 12-bit
IDE	Arduino IDE	IDLE, Scratch, Squeak	Py, Scratch, Squeak
TWI/I2C	2	1	2
SPI	1	1	1
UART	1	1	5

Conclusion: We studied various SBCs like Raspberry Pi, Arduino and Beagle Bone